

Please replace the Abstract at page 35, lines 1-13, with the following Abstract:

#### ABSTRACT

A logic apparatus having first and second single-electron devices connected serially or in parallel. Each of the single-electron devices includes a conductive island insulatively disposed between two tunnel barriers, which separate the conductive island from respective source/drain electrodes. A first charge storage region is insulatively disposed over and under the conductive island and a gate electrode, respectively. When charges are accumulated in the charge storage region, a Coulomb oscillation of the respective device is shifted by a half-period from the Coulomb oscillation that results when no charge has accumulated therein.